Abstracts

Characterization of flicker noise in GaAs MESFET's for oscillator applications

P.A. Dallas and J.K.A. Everard. "Characterization of flicker noise in GaAs MESFET's for oscillator applications." 2000 Transactions on Microwave Theory and Techniques 48.2 (Feb. 2000 [T-MTT] (Mini-Special Issue on Research Reported at the 1999 Radio Frequency Integrated Circuits (RFIC) Symposium)): 245-257.

GaAs MESFET oscillators commonly exhibit increased close-to-carrier noise, which is often attributed to upconversion of flicker noise from the MESFET. To establish and quantify this effect, this paper presents an experimental system that allows the simultaneous measurement of the flicker noise on the gate and drain terminals of a GaAs-MESFET, and of the noise imposed on an RF carrier when amplified by the MESFET. The cross correlations between these parameters can thus be determined; an analytical method is shown for extracting the levels of the effective sources of flicker noise from the results, and the manner in which these affect the RF carrier. In the tests performed, it was often found that the close-to-carrier noise was related directly to the low-frequency flicker noise.

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